Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAJESH RENGARAJAN and
VENKATACHALAM C. JAIPRAKASH

Appeal No. 2001-2080
Application No. 09/000,626

ON BRIEF

Before Warren, Owens, and Pawlikowski Administrative Patent Judges.

Pawlikowski Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-5, 7, 24, and 25. We have jurisdiction under 35 U.S.C. § 134.

Claim 1 is illustrative of the subject matter on appeal and is set forth below:

1. A shallow trench isolation in a substrate, said shallow trench isolation structure comprising:

a trench in said substrate;

a nitride liner recessed within said trench and the nitride liner forming a partially enclosed volume, said partially enclosed volume being completely filled with a dieletric material which also completely fills the trench;

an uppermost surface of said nitride liner being disposed just below a transistor channel depth, Dc, of a transistor disposed in a well beside said shallow trench isolation structure, the recessed nitride liner being dimensioned and configured to prevent hot carrier effects due to charge trapping for charge which traverses a channel of the transistor;

the dielectric material including an oxide disposed above said nitride liner such that said oxide extends above the uppermost surface of said nitride liner to substantially a top surface of said substrate, such that substantially no polysilicon material is disposed within the trench.

The examiner relies upon the following references as evidence of unpatentability:

JP 57-159038	Fukuda	Oct. 1, 1982
5,872,045	Lou	Feb. 16, 1999
5,972,778	Hamada	Oct. 26, 1999

S. Wolf, Silicon Processing for the VLSI Era, Vo. 2 - Process Integration, pages 45 & 154, 1990.

Claims 1 and 24 stand rejected under 35 U.S.C. § 112, first paragraph (written description). In the examiner's Response to Remand (Paper No. 32), on page 1, the examiner removed claims 2-5, 7, and 25 from this rejection.

Claims 1-5, 7, 24, and 25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fukuda et al. in view of Lou, Wolf, and Hamada.

OPINION

Upon careful review of each of the examiner's rejections, and upon careful review of appellants' position regarding each of the examiner's rejections, we set forth a new ground of rejection and reject claims 1-5, 7, 24, and 25 under 35 U.S.C. § 112, second paragraph (indefiniteness). This new ground of rejection is set forth below.

I. The New Ground of Rejection under 35 U.S.C. § 112, second paragraph (indefiniteness)

Each of independent claims 1 and 24 recite the phrase "just below".

We find that appellants' specification indicates that it is undesirable to have the nitride liner in proximity to the transistor channel such that hot carrier reliability problems are caused. See, for example, page 3, lines 16-26 of appellants' specification. See also page 6, lines 18-24 of appellants' specification. Hence, this need to have the nitride liner located some distance from the transistor channel so as to avoid

hot carrier reliability problems conflicts with the phrase "just below" such that the meaning of the phrase "just below" is uncertain.

We note that the purpose of the second paragraph of Section 112 is to basically insure, with a reasonable degree of particularity, an adequate notification of the metes and bounds of what is being claimed. See In re Hammack, 427 F.2d 1378, 1382, 166 USPQ 204, 207-208 (CCPA 1970). Also, when a word of degree is used, it must be determined whether the specification provides some standard for measuring that degree. Seattle Box Co. v. Industrial Cratering & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 573-574 (Fed. Cir. 1984).

Here, because of the conflict discussed above, we reject claims 1-5, 7, 24 and 25 under 35 U.S.C. § 112, second paragraph (indefiniteness).

II. The rejection of the claims under 35 U.S.C. § 112, first paragraph (written description)

We cannot reach this issue in light of the aforementioned 35 U.S.C. § 112, second paragraph (indefiniteness) rejection. See In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971) ("Once having determined that the subject defined by the claims is particular and definite, the analysis then turns to the first paragraph of 35 U.S.C. § 112 to determine if the scope of the protection sought is supported and justified by the specification disclosure.").

III. The 35 U.S.C. § 103 rejection

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 103 begins with a determination of the scope of the claim. The properly interpreted claim must then be compared with the prior art.

Because the appealed claims fail to satisfy the definiteness requirements of the second paragraph of § 112, it reasonably follows that the examiner's rejection under 35 U.S.C. § 103 is premature.

To that end, the predecessor of our appellate reviewing court has held that it is erroneous to analyze claims based on "speculation as to the meaning of the terms employed and assumptions" as to their scope. In re Steele, 305 F.2d 859, 862-863, 134 USPQ 292, 295-296 (CCPA).

Consequently, in comparing the claimed subject matter with the applied art, it is apparent that considerable speculations and assumptions are necessary in order to determine what in fact is being claimed. Since a rejection based on prior art cannot be based on speculation and assumptions, we reverse, pro forma, the examiner's 35 U.S.C. § 103 rejections. Id.

It is noteworthy that this is a procedural reversal rather than one based upon the merits of the 35 U.S.C. § 103 rejection.

IV. Procedural Guidelines

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR §1.196(b) provides that, "A new ground of

rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter. reconsidered by the examiner, in which event the application will be remanded to the examiner. . .

(2) Request that the application be reheard under § 1.197 (b) by the Board of Patent Appeals and Interferences upon the same record . . . .

If appellants elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

V. Conclusion

Claims 1-5, 7, 24 and 25 stand rejected under 35 U.S.C. § 112, second paragraph (indefiniteness). This is a new ground of rejection.

The issue regarding the rejection under 35 U.S.C. § 112, first paragraph (written description) is not reached at this time.

The 35 U.S.C. § 103 rejection is reversed, pro forma.

REVERSED and 37 CFR § 1.196(b)

CHARLES F. WARREN
Administrative Patent Judge)

TERRY J. OWENS
Administrative Patent Judge) BOARD OF PATENT APPEALS AND INTERFERENCES

BEVERLY A. PAWLIKOWSKI
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